Grampus Stearnsii, n.sp.

Colours dark, but variable; the anterior portion of the body white, and the sides of the body more or less mottled with grey. Dorsal high and slightly falcate. Animal 12 or 15 feet long; teeth $\frac{0}{3}$ or $\frac{0}{4}$. Coast of California.

Two lower jaws of this animal are in my hands for examination; and, but that no *Grampus* has been described from the Pacific, I should hesitate about applying a specific name to them. Gray has, indeed, catalogued a *Grampus* (?) *sakamata* (!) from Japan, based on a Japanese account quoted by Schlegel; but the genus is by no means certain, the descriptions are conflicting, and the species rests on no scientific basis. The jaws referred to are attributed by Captain Scammon to his "white-headed grampus," and measure from the end of the beak to the condyles 17·5 in., ditto to coronoid process 16·2 in.; height of ramus at coronoid process 5 in.; length of symphysis 2 in.; height of gonys 2 in.; width between outer corners of condyles 14 in., ditto at inferior dental foramen 7 in. Teeth in one specimen three, and in the other four on each side near the tip, pointed, solid, shaped like an orange-seed, and extending forward and outward.

Fuller descriptions of this and the last species will be given in the work referred to. The present species is dedicated, by Capt. Scammon's wish, to Mr. R. E. C. Stearns of San Francisco, well known for his researches in natural history.—*Proceedings of the California Academy of Sciences*, Jan. 29, 1873.

On Hypermetamorphosis in Palingenia virgo, *and on the Analogies of its Larva with the Crustacea.* By M. N. Joly.

M. Joly has ascertained that the larva of *Palingenia virgo*, when just hatched, has no visible nervous system, no circulatory apparatus, and no organs of respiration. The antennæ and the caudal setæ have not yet the number of joints or the villosity which they will afterwards acquire. The branchiæ appear at a subsequent period in the form of little tubular cæca placed at the posterior angles of the first six segments of the abdomen. These tubular branchiæ afterwards become converted into membranous expansions, which act not only as organs of respiration, but also as very powerful locomotive organs. The circulation, which had at first manifested itself as a simple oscillation of the blood, becomes perfected, and the contractions of the dorsal vessel become very visible.

These facts have probably the merit of novelty as regards the species under investigation; but the author is mistaken in supposing them to be new in the history of insects. M. Joly seems to be ignorant of the memoirs on the development of insects which have been published out of France during the last ten years. Especially he was unacquainted with the remarkable observations of Sir John Lubbock on *Chloëon dimidiatum*, an Ephemeride nearly allied to *Palingenia virgo*. The English naturalist has described in the greatest detail the numerous moults of the larva, the increase in

the number of joints of the antennæ and caudal setæ, the curious development of the eyes, the appearance of the respiratory organs and their gradual transformation, &c. Not one of the points touched on by M. Joly, but has been already treated with a master hand by Lubbock. Every thing seems to go on in an identical manner in the two larvæ, except as regards the caudal setæ. Thus M. Joly figures an embryo of *Palingenia*, artificially released from the egg before hatching, in which we see the three caudal setæ equal to each other; in the *Chloëon*, on the contrary, only the two lateral filaments exist in the very young larva, the median filament being developed only at a later period and gradually. The metamorphosis is therefore more complete in this respect in *Chloëon* than in *Palingenia*. This difference is not of great importance, and would not have sufficed to lead us to dwell upon M. Joly's memoir; but the conclusions which the author draws from his observations seem to us to be erroneous and to require contradiction.

M. Joly thinks he has discovered a new case of *hypermetamorphosis*, and tries to find in the development of *Palingenia* evidence of a transition between Insects and Crustacea.

How can the development of the larvæ of the Ephemeridæ, which takes place so gradually, without sudden and strongly marked transformations and without the intercalation of pupoid forms, be compared with that of *Sitaris*, in which M. Fabre has ascertained the existence of a *primitive larva*, a *second larva*, a *pseudo-pupa*, and a *third larva*, forms which mark so many phases clearly separated from each other? In the Cantharidæ there are metamorphoses during the larval state; in the Ephemeridæ there are only changes of skin accompanied by those gradual changes which constitute precisely the character of the Insecta Hemimetabola. If we should apply the name of hypermetamorphosis to the larval development of the Ephemeridæ, which is so continuous and so graduated, what name shall we have to coin for the curious transformations of the Pteromalinæ described by Ganin?*

As to the transition between the Insects and Crustacea, which the author desires to establish upon vague analogies between certain systems of organs, it seems to us to be rather rash. We can suppose the existence of a common stock from which the Insecta and the Myriopoda would have originated, or at least a portion of the latter. These two classes are bound together in existing nature by the Orthoptera (Thysanura) on the one hand and the Chilopoda on the other. The genera which form the bridge between the two groups are *Nicoletia*, *Campodia*, *Scolopendrella* (*S. immaculata*), and perhaps *Pauropus*. It is even difficult to decide absolutely whether *Scolopendrella* should be referred to one class or the other. But the affinities between the Orthoptera and the Crustacea are certainly much more distant, and we must ascribe the value of *homologies* to mere superficial *analogies*.—A. Humbert, *Bibl. Univ.* December 15, 1872, *Bull. Sci.* p. 415.

* "Beiträge zur Erkenntniss der Entwickelungsgeschichte bei den Insekten," Zeitschr. für wiss. Zool. Bd. xix. (1869) pp. 381–451.